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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/748,684	FITZMAURICE ET AL.	
	Examiner	Art Unit	
	STEPHEN G. SHERMAN	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 February 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27 and 29-41* is/are rejected.

7)☒ Claim(s) *28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 February 2009* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 24 February 2009 has been entered. Claims 1-41 are pending.

Response to Arguments

2. Applicant's arguments filed with respect to the prior art rejections of claims 1-27 and 29-41 have been fully considered but they are not persuasive.

On page 14 of the response the applicant argues that claims 32-33 and 38 as amended are not taught by Anderson because Anderson does not teach "located at least a distance equal to a typical user wrist away from an edge of the display", however, as explained in the rejection below, no matter where the interface of Anderson is positioned, it will be at least a "typical wrist" away from *an* edge of the display. Thus Anderson still discloses the features of these claims.

On pages 14 and 15 of the response the applicant argues the remaining claims by attacking the combination of Anderson and Miettinen. Specifically, the applicant argues that Miettinen fails to teach a compound motion of a user elbow and rotation of a user wrist and further argues that the statement made by the examiner in the previous Office Action on page 5, line 2 that Miettinen was only used to teach different arm motions in an interface and then on page 14 that Anderson fails to teach a compound motion produced by a compound motion of rotation of the user elbow and rotation of the user wrist are contradictory. The examiner respectfully disagrees. The applicant seems to be ignoring the final paragraph of the rejection of, for example, claim 1 The reason that the examiner stated that Miettinen was only used to teach different arm motions in an interface was because that is what the reference was used for. That does not contradict the fact that Anderson fails to teach a compound motion produced by a compound motion of rotation of the user elbow and rotation of the user wrist, but rather the examiner thinks what the applicant meant is that these two statements fail to teach the claimed limitations, however, in the rejection, the examiner readily admits that neither Anderson not Miettinen explicitly teach the combination of a wrist and elbow motion use in an interface, but rather that based on the teachings of having the wrist/finger motion of Anderson and the shoulder/elbow motion of Miettinen, it would have been an obvious design choice since the applicant states in their specification that any combination can be used, and thus this combination of wrist and elbow is not essential to the invention. Therefore, since the applicant has not responded to the examiner's entire rejection, the rejections are maintained.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 32-33 and 38-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Anderson et al. (US 5,828,360).

Regarding claim 32, Anderson et al. disclose a display, comprising:

a control zone for a function of an interface and located at least a distance equal to a typical user wrist away from an edge of the display (Figure 3 shows the disc menu 30, with section 32 which is a control zone. No matter where on the display the menu 30 is located, it will be at least a typical wrist away from AN edge of the display. For example, if it is in the upper left corner then it would be at least a typical wrist away from the lower edge of the display.); and

an interface element graphic aligned with the control zone and indicating the function with the interface graphic (Figure 3 shows that every interface element shown on control zone 32, such as square, circle, line, etc. indicates the function of the element.), and

the control zone only aligned to a natural user motion of independent finger motion (Figure 3 shows the controls 32 require only independent finger motion relative to the movement of the wrist, meaning that that controls 32 are positionally aligned to allow for a natural motion of independent finger motion to be used. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that when the control zone 32 is present, the only way for a user to reach these options without using the wrist is to use only finger motion, since a wrist motion will not allow the user to select the elements such as those close to the center.).

Regarding claim 33, Anderson et al. disclose a display as recited in claim 32, wherein the control zone further comprises a zone access comprising one of an elbow motion curve, a wrist motion curve and a shoulder motion curve in combination with the finger motion (Figures 2a, 2b and 3 show that the wrist moves for "zone access" 31, therefore there is a zone access motion that is based on a wrist motion, meaning that the entire motion is based on a combination of these two motions.).

Regarding claim 38, Anderson et al. disclose a display, comprising:

an arc shaped control zone for a function of an interface and located at least a distance equal to a typical user wrist away from an edge of the display (Figure 3 shows the disc menu 30, with section 31 which is a control zone that is arc shaped. No matter where on the display the menu 30 is located, it will be at least a typical wrist away from

AN edge of the display. For example, if it is in the upper left corner then it would be at least a typical wrist away from the lower edge of the display.); and

an arc shaped interface element graphic aligned with the control zone and indicating the function with the arc shaped interface graphic (Figure 3 shows that interface element 31a-31h is arc shaped and is aligned with the control zone and indicates the function of the element, such as icon, scan, send, call, etc.),

and the arc shaped control zone aligned to a natural user motion produced only by rotation of a user wrist (Figure 3 shows the controls 31 require only wrist motion, meaning that that controls 31 are positionally aligned to allow for a natural motion of only the wrist to be used. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that if the wrist is not lifted that the only way to access the element only the arc 31 is to move the wrist.).

Regarding claim 39, please refer to the rejection of claim 32, where if only the finger motion is used as described with respect to claim 32 then the wrist would be "static".

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-23, 25, 29-31, 34-37 and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. (US 5,828360) in view of Miettinen et al. (US 2002/0054175).

Regarding claim 1, Anderson et al. disclose a display located on a single side of a user (Figures 1-3 show that the display is located only on a single side of the user.), comprising:

an arc shaped control zone for a function of an interface located on the single side and located at least a distance equal to a typical user wrist away from an edge of the display (Figure 3 shows the disc menu 30 which in its entirety is an arc shaped control zone. No matter where on the display the menu 30 is located, it will be at least a typical wrist away from AN edge of the display. For example, if it is in the upper left corner then it would be at least a typical wrist away from the lower edge of the display.); and

an arc shaped interface element graphic located on the single side, aligned with the arc shaped control zone (Figure 3 shows that the disc menu 30 has an arc, and that the menu comprises interface elements 31a through 31h as well as the interface elements located within area 32 which are arranged in an arc shape around the control zone.) and indicating the function with the arc shaped interface graphic (Figure 3 shows that every interface element 31a-31h indicated the function of the element, i.e. scan, send call, etc. while the elements in area 32 represent square, circle, line, etc. such that the arc shaped interface graphic indicates the function.) and

the arc shaped control zone aligned to a natural user motion produced by a compound motion of a rotation of the user wrist and the user fingers (Figure 3 shows the controls 31 require wrist motion while controls 32 require finger motion, meaning that that controls 31 and 32 are positionally aligned to allow for a natural motion produced by the combination of a wrist and fingers. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that if the wrist is not lifted that the only way to access the element only the arc 31 is to move the wrist, while the only way for a user to reach the options of menu 32 without using the wrist is to use only finger motion, and therefore, the entire menu 30 is based upon a compound motion of a users wrist and fingers.).

Anderson et al. fail to explicitly teach that the arc is aligned to a natural user motion produced by a compound motion of rotation of the user elbow and rotation of a user wrist.

Miettinen et al. disclose of an arc shaped control zone that is aligned to a natural user motion produced by rotation of a user elbow and rotation of a user shoulder (Figure 1 and paragraph [0066] explains that there are two areas in the interface, one for access of moving the arm with the elbow bent, i.e. rotation of the elbow, and one for a straight arm rotation, i.e. shoulder.).

Therefore, since Anderson et al. and Miettinen et al. both teach of arc shaped interfaces aligned to a user natural motion, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to substitute one natural motion for another natural motion in order to achieve the predictable result of aligning the interface to a natural motion.

Although the combination of Anderson et al. and Miettinen et al. fails to explicitly teach the combination of the rotation of the elbow and the rotation of the wrist, since it is not described as being essential to the invention and in fact the applicant states that any combination of curves could be used, it would have been an obvious design choice to “one of ordinary skill” in the art at the time the invention was made to align the interface to any combination of natural motion for the arm for operating a stylus/mouse in order to facilitate the use of the interface depending upon the platform or facility it is used.

Regarding claim 2, Anderson et al. and Miettinen et al. disclose a display as recited in claim 1.

Anderson et al. also disclose wherein the alignment orients the graphic and zone with the motion (Figures 2a and 2b show the menu is aligned with a motion of a user, as explained above.).

Regarding claim 3, Anderson et al. and Miettinen et al. disclose a display as recited in claim 1.

Anderson et al. also disclose wherein the alignment follows the natural user motion (Figures 2a and 2b show the menu is aligned with a motion of a user, as explained above.).

Regarding claim 4, Anderson et al. and Miettinen et al. disclose a display as recited in claim 1.

Anderson et al. also disclose wherein the alignment positions the graphic and zone at a location accessible via the natural user motion (Figures 2a and 2b show the menu is aligned with a motion of a user, as explained above.).

Regarding claim 5, Anderson et al. and Miettinen et al. disclose a display as recited in claim 1.

Anderson et al. also disclose wherein the natural user motion comprises a curve determined by one or more strokes of the user on the display (Figures 2a and 2b show the menu is aligned with a motion of a user, as explained above.).

Regarding claim 6, Anderson et al. and Miettinen et al. disclose a display as recited in claim 5.

Anderson et al. also disclose wherein the curve includes natural motion variations (Figures 2a and 2b show the menu is aligned with a motion of a user, as explained above, where variations between a left handed and right handed person may be taken into account as explained in Figures 4a and 4b.).

Regarding claim 7, Anderson et al. and Miettinen et al. disclose a display as recited in claim 5.

Anderson et al. also disclose wherein the natural motion stroke additionally comprises a finger motion curve, a shoulder motion curve and a combination of two or more curves (As explained with reference to claim 1, the control area 32 is based upon finger motion.).

Regarding claim 8, Anderson et al. and Miettinen et al. disclose a display as recited in claim 7.

Anderson et al. also disclose wherein the curve is a curve determined by a single user (Figure 2a and 2b show that there is only a single user using the menu and therefore the curve is only based upon one user.).

Regarding claim 9, Anderson et al. and Miettinen et al. disclose a display as recited in claim 1.

Anderson et al. also disclose a display further comprising an interface location at which the zone and graphic are positioned (Figures 5a and 5b shows that an interface location is where the zone and graphic are positioned.).

Regarding claim 10, Anderson et al. and Miettinen et al. disclose a display as recited in claim 9.

Anderson et al. also disclose wherein the interface location is specified by a cursor positioned by the user (Figures 5a and 5b show that the menu is located based upon where the cursor 54 is positioned.).

Regarding claim 11, Anderson et al. disclose a graphical user interface, comprising:

a cursor positioned on a display by a user at a location the display located on a single side of a user and located at least a distance equal to a typical user wrist away from an edge of the display (Figures 5a and 5b show a cursor 54 at a location specified by a user. Figures 1-3 show that the display is located only on a single side of the user. No matter where on the display the menu 30 is located, it will be at least a typical wrist away from AN edge of the display. For example, if it is in the upper left corner then it would be at least a typical wrist away from the lower edge of the display.); and

a function control positioned on the display responsive to the location of the cursor (Figures 5a and 5b show that the menu 53 is positioned on the display 50 based on the position of the cursor 54.), and

having an arc shaped interface graphic indicating a function of the control (Figure 3 shows the disc menu 30 which in its entirety is an arc shaped control zone and Figure 3 shows that every interface element 31a-31h indicated the function of the element, i.e. scan, send call, etc. while the elements in area 32 represent square, circle, line, etc.), and

having an arc shape conforming to a motion arc of a hand caused by a compound motion of an hand about a wrist of the user and the fingers of the user (Figure 3 shows the controls 31 require wrist motion while controls 32 require finger motion, meaning that that controls 31 and 32 are positionally aligned to allow for a natural motion produced by the combination of a wrist and fingers. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that if the wrist is not lifted that the only way to access the element only the arc 31 is to move the wrist, while the only way for a user to reach the options of menu 32 without using the wrist is to use only finger motion, and therefore, the entire menu 30 is based upon a compound motion of a users wrist and fingers.).

Anderson et al. fail to explicitly teach that the function control has an arc shape conforming to a motion arc of a hand caused by a compound motion of an arm about an elbow of the user and the hand about a wrist of the user.

Miettinen et al. disclose of an arc shaped control zone that is aligned to a natural user motion produced by rotation of a user elbow and rotation of a user shoulder (Figure 1 and paragraph [0066] explains that there are two areas in the interface, one for

access of moving the arm with the elbow bent, i.e. rotation of the elbow, and one for a straight arm rotation, i.e. shoulder.).

Therefore, since Anderson et al. and Miettinen et al. both teach of arc shaped interfaces aligned to a user natural motion, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to substitute one natural motion for another natural motion in order to achieve the predictable result of aligning the interface to a natural motion.

Although the combination of Anderson et al. and Miettinen et al. fails to explicitly teach the combination of the rotation of the elbow and the rotation of the wrist, since it is not described as being essential to the invention and in fact the applicant states that any combination of curves could be used, it would have been an obvious design choice to “one of ordinary skill” in the art at the time the invention was made to align the interface to any combination of natural motion for the arm for operating a stylus/mouse in order to facilitate the use of the interface depending upon the platform or facility it is used.

Regarding claim 12, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 11.

Anderson et al. also disclose wherein the control comprises plural controls and the controls are aligned along the arc (Figures 3, 5a and 5b show that there are plural controls 31a-31h that are aligned around the arc.).

Regarding claim 13, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 12.

Anderson et al. also disclose wherein a default control is positioned under the cursor at a particular instance (Figure 3 shows that the controls 31a-31h, which are default controls to the menu, can be positioned under the cursor at a particular instance in which a user moves the cursor over the control.).

Regarding claim 14, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 12.

Anderson et al. also disclose wherein the controls can be one of re-oriented and moved (Figures 5a and 5b show that the menu can be moved.).

Regarding claim 15, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 12.

Anderson et al. also disclose wherein controls are oriented and shaped to conform to a wrist arc caused by a hand moving about a wrist of the user (As expaliend above, Figure 3 shows the controls 31 require wrist motion while controls 32 require finger motion, meaning that that controls 31 and 32 are positionally aligned to allow for a natural motion produced by the combination of a wrist and fingers. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that if the wrist is not lifted that the only way to access the element only the arc 31 is to move the wrist.).

Regarding claim 16, please refer to the rejection of claim 11, where Anderson also discloses that a portion of the controls are aligned coincident to an arc intersecting the motion arc at 90 degrees (Figures 7a and 7b show that there are arcs 73 of the sub-options that are 90 degrees from the outer-circle arc, thus they are "coincident" to an arc intersecting the motion arc at 90 degrees.).

Regarding claim 17, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 11.

Anderson et al. also disclose wherein the control comprises plural controls (Figure 3, controls 31a-31h.) and the shape of the sides of each of the controls is one of rectilinear, arc shaped, wedge shaped and triangular shaped (Figures 3 and 8 show that each of the controls can be characterized as being rectilinear, arc shaped, wedge shaped and triangular shaped.).

Regarding claim 18, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 11.

Anderson et al. also disclose the interface further comprising an overflow interface positioned responsive to the motion arc (Figure 3 shows overflow interface 32 which is positioned responsive to the motion arc.).

Regarding claim 19, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 11.

Anderson et al. also disclose wherein text of the control is rectilinear aligned with a display (Figures 3, 5a and 5b show that the text of the control such as Send, Call and ABC are rectilinear with a display.).

Regarding claim 20, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 19.

Anderson et al. also disclose wherein the overflow interface is natural motion arc shaped (Figure 3.).

Regarding claim 21, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 12.

Anderson et al. also disclose wherein the control is oriented to an extended arc (Figure 3 shows that the arc is “extended” into a circular shape.).

Regarding claim 22, please refer to the rejection of claims 6, 16 and 18, and further more Anderson et al. also disclose wherein a default control is positioned under the cursor (Figures 5a and 5b show that the default center control for controlling the position of the interface is located underneath the cursor.).

Regarding claims 23 and 25, Anderson et al. disclose a method and a computer readable storage for controlling a computer, comprising:

determining a position of a cursor as designated by a user (Figures 5a and 5b show that the position of the cursor 54 is determined on the screen.), and

positioning an arc shaped graphical user interface on a single side of a user and located at least a distance equal to a typical user wrist away from an edge of the display, and responsive to the position where the arc of the shape is defined by a natural user motion produced by a compound motion of a rotation of the user wrist and the user fingers (Figure 3 shows the controls 31 require wrist motion while controls 32 require finger motion, meaning that that controls 31 and 32 are positionally aligned to allow for a natural motion produced by the combination of a wrist and fingers. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that if the wrist is not lifted that the only way to access the element only the arc 31 is to move the wrist, while the only way for a user to reach the options of menu 32 without using the wrist is to use only finger motion, and therefore, the entire menu 30 is based upon a compound motion of a users wrist and fingers. No matter where on the display the menu 30 is located, it will be at least a typical wrist away from AN edge of the display. For example, if it is in the upper left corner then it would be at least a typical wrist away from the lower edge of the display.).

Anderson et al. fail to explicitly teach that the arc is aligned to a natural user motion produced by a compound motion of an arm about an elbow and a hand about a wrist of the user.

Miettinen et al. disclose of an arc shaped control zone that is aligned to a natural user motion produced by rotation of a user elbow and rotation of a user shoulder (Figure 1 and paragraph [0066] explains that there are two areas in the interface, one for access of moving the arm with the elbow bent, i.e. rotation of the elbow, and one for a straight arm rotation, i.e. shoulder.).

Therefore, since Anderson et al. and Miettinen et al. both teach of arc shaped interfaces aligned to a user natural motion, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to substitute one natural motion for another natural motion in order to achieve the predictable result of aligning the interface to a natural motion.

Although the combination of Anderson et al. and Miettinen et al. fails to explicitly teach the combination of the rotation of the elbow and the rotation of the wrist, since it is not described as being essential to the invention and in fact the applicant states that any combination of curves could be used, it would have been an obvious design choice to “one of ordinary skill” in the art at the time the invention was made to align the interface to any combination of natural motion for the arm for operating a stylus/mouse in order to facilitate the use of the interface depending upon the platform or facility it is used.

Regarding claim 29, Anderson et al. disclose an apparatus, comprising:

a display on a single side of a user and located at least a distance equal to a typical user wrist away from an edge of the display (Figure 1, item 11. Figures 1-3 show that the display is located only on a single side of the user. No matter where on the display the menu 30 is located, it will be at least a typical wrist away from AN edge of the display. For example, if it is in the upper left corner then it would be at least a typical wrist away from the lower edge of the display.); and

a computer producing an arc shaped graphical user interface on the display where the arc of the shape is defined by a natural user motion produced by a compound motion of a rotation of the user wrist and the user fingers (Figure 3 shows the controls 31 require wrist motion while controls 32 require finger motion, meaning that that controls 31 and 32 are positionally aligned to allow for a natural motion produced by the combination of a wrist and fingers. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that if the wrist is not lifted that the only way to access the element only the arc 31 is to move the wrist, while the only way for a user to reach the options of menu 32 without using the wrist is to use only finger motion, and therefore, the entire menu 30 is based upon a compound motion of a users wrist and fingers.).

Anderson et al. fail to explicitly teach that the arc is aligned to a natural user motion produced by a compound motion of an arm about an elbow and a hand about a wrist of the user.

Miettinen et al. disclose of an arc shaped control zone that is aligned to a natural user motion produced by rotation of a user elbow and rotation of a user shoulder (Figure

1 and paragraph [0066] explains that there are two areas in the interface, one for access of moving the arm with the elbow bent, i.e. rotation of the elbow, and one for a straight arm rotation, i.e. shoulder.).

Therefore, since Anderson et al. and Miettinen et al. both teach of arc shaped interfaces aligned to a user natural motion, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to substitute one natural motion for another natural motion in order to achieve the predictable result of aligning the interface to a natural motion.

Although the combination of Anderson et al. and Miettinen et al. fails to explicitly teach the combination of the rotation of the elbow and the rotation of the wrist, since it is not described as being essential to the invention and in fact the applicant states that any combination of curves could be used, it would have been an obvious design choice to “one of ordinary skill” in the art at the time the invention was made to align the interface to any combination of natural motion for the arm for operating a stylus/mouse in order to facilitate the use of the interface depending upon the platform or facility it is used.

Regarding claim 30, Anderson et al. disclose a display, comprising:

a control zone for a function of an interface on a single side of a user and located at least a distance equal to a typical user wrist away from an edge of the display (Figure 3 shows the disc menu 30 which is an arc shaped control zone. Figures 1-3 show that the display is located only on a single side of the user. No matter where on the display the menu 30 is located, it will be at least a typical wrist away from AN edge of the

display. For example, if it is in the upper left corner then it would be at least a typical wrist away from the lower edge of the display.); and

an interface element graphic aligned with the control zone and indicating the function with the interface graphic (Figure 3 shows that the menu comprises interface elements 31a through 31h and 32 which are arranged in an arc shape around the control zone. Figure 3 shows that every interface element 31a-31h and 32 indicated the function of the element, i.e. scan, send call, square, circle, etc.), and

the control zone aligned to a natural user motion produced by a compound motion of a rotation of the user wrist and the user fingers (Figure 3 shows the controls 31 require wrist motion while controls 32 require finger motion, meaning that that controls 31 and 32 are positionally aligned to allow for a natural motion produced by the combination of a wrist and fingers. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that if the wrist is not lifted that the only way to access the element only the arc 31 is to move the wrist, while the only way for a user to reach the options of menu 32 without using the wrist is to use only finger motion, and therefore, the entire menu 30 is based upon a compound motion of a users wrist and fingers.).

Anderson et al. fail to explicitly teach that the arc is aligned to a natural user motion produced by a compound motion of an elbow motion and a wrist motion.

Miettinen et al. disclose of an arc shaped control zone that is aligned to a natural user motion produced by rotation of a user elbow and rotation of a user shoulder (Figure 1 and paragraph [0066] explains that there are two areas in the interface, one for

access of moving the arm with the elbow bent, i.e. rotation of the elbow, and one for a straight arm rotation, i.e. shoulder.).

Therefore, since Anderson et al. and Miettinen et al. both teach of arc shaped interfaces aligned to a user natural motion, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to substitute one natural motion for another natural motion in order to achieve the predictable result of aligning the interface to a natural motion.

Although the combination of Anderson et al. and Miettinen et al. fails to explicitly teach the combination of the rotation of the elbow and the rotation of the wrist, since it is not described as being essential to the invention and in fact the applicant states that any combination of curves could be used, it would have been an obvious design choice to “one of ordinary skill” in the art at the time the invention was made to align the interface to any combination of natural motion for the arm for operating a stylus/mouse in order to facilitate the use of the interface depending upon the platform or facility it is used.

Regarding claim 31, Anderson et al. and Miettinen et al. disclose a display as recited in claim 30.

Anderson et al. also disclose wherein the user natural motion stroke comprises one of an a wrist motion curve, a finger motion curve and a shoulder motion in combination with the elbow motion (As explained with reference to claim 1, the control area 32 is based upon finger motion.).

Regarding claim 34, Anderson et al. disclose a display, comprising:

a control zone for a function of an interface and located at least a distance equal to a typical user wrist away from an edge of the display (Figure 3 shows the disc menu 30, with section 32 which is a control zone. No matter where on the display the menu 30 is located, it will be at least a typical wrist away from AN edge of the display. For example, if it is in the upper left corner then it would be at least a typical wrist away from the lower edge of the display.); and

an interface element graphic aligned with the control zone and indicating the function with the interface graphic (Figure 3 shows that every interface element shown on control zone 32, such as square, circle, line, etc. indicates the function of the element.), and

the control zone aligned to a natural user motion of a finger motion or a wrist motion (Figure 3 shows the controls 31 require wrist motion while controls 32 require finger motion. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that if the wrist is not lifted that the only way to access the element only the arc 31 is to move the wrist, while the only way for a user to reach the options of menu 32 without using the wrist is to use only finger motion.).

Anderson et al. fail to teach the control zone aligned to a natural user motion of a shoulder motion.

Miettinen et al. disclose of an arc shaped control zone that is aligned to a natural user motion of a shoulder motion (Figure 1 and paragraph [0066] explains that there is an interface for a straight arm rotation, i.e. shoulder.).

Therefore, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to substitute the motion taught by Anderson et al. with the motion taught by Miettinen et al. in order to align the interface to any natural motion for the arm for operating a stylus/mouse in order to facilitate the use of the interface depending upon the platform or facility it is used.

Regarding claim 35, Anderson et al. and Miettinen et al. disclose a display as recited in claim 34.

Anderson et al. also disclose wherein the user natural motion stroke comprises one of an elbow motion curve, a wrist motion curve and a finger motion curve in combination with the shoulder motion (As explained with reference to claim 1, the control area 32 is based upon finger motion.).

Regarding claim 36, this claim is rejected under the same rationale as claims 1 and 11.

Regarding claim 37, Anderson et al. disclose a display, comprising:

an arc shaped control zone for a function of an interface and located at least a distance equal to a typical user wrist away from an edge of the display (Figure 3 shows the disc menu 30, with section 31 which is a control zone that is arc shaped. No matter

where on the display the menu 30 is located, it will be at least a typical wrist away from AN edge of the display. For example, if it is in the upper left corner then it would be at least a typical wrist away from the lower edge of the display.); and

an arc shaped interface element graphic aligned with the control zone and indicating the function with the arc shaped interface graphic (Figure 3 shows that interface element 31a-31h is arc shaped and is aligned with the control zone and indicates the function of the element, such as icon, scan, send, call, etc.),

and the arc shaped control zone aligned to a natural user motion produced only by rotation of a user wrist (Figure 3 shows the controls 31 require only wrist motion, meaning that that controls 31 are positionally aligned to allow for a natural motion of only the wrist to be used. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that if the wrist is not lifted that the only way to access the element only the arc 31 is to move the wrist.).

Anderson et al. fail to teach the control zone aligned to a natural user motion produced by only rotation of a user elbow.

Miettinen et al. disclose of an arc shaped control zone that is aligned to a natural user motion of a shoulder motion (Figure 1 and paragraph [0066] explains that there is an interface for an arm rotation bent at the user elbow, i.e. elbow motion.).

Therefore, it would have been obvious to “one of ordinary skill” in the art at the time the invention was made to substitute the motion taught by Anderson et al. with the motion taught by Miettinen et al. in order to align the interface to any natural motion for

the arm for operating a stylus/mouse in order to facilitate the use of the interface depending upon the platform or facility it is used.

Regarding claim 40, this claim is rejected under the same rationale as claim 30.

Regarding claim 41, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 11, wherein the cursor is positioned on a horizontal display and the compound motion is performed on a horizontal surface (Figure 1 of Anderson shows display 11 which will have a cursor positioned on it, where this display is a "horizontal display" as claimed because the top surface of the display is "horizontal" while the compound motion will be performed on 15, which is a "horizontal" surface. [the claim nor the specification define a "horizontal" display and as such the examiner has used the broadest reasonable interpretation possible]).

8. Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. (US 5,828,360)in view of Miettinen et al. (US 2002/0054175) and further in view of Ono (US 5,559,944).

Regarding claim 26, please refer to the rejection of claim 1, and furthermore Anderson et al. and Miettinen et al. fail to teach:

allowing a user to make strokes with an input device;

determining an arc from the strokes; and

laying out a graphical user interface, including controls, to conform to the arc.

Ono discloses of a method comprising:

allowing a user to make strokes with an input device with the input device located on a single side of a user (Fig. 7. Figures 6 and 11 shows that the display is located on a single side of the user.);

determining an arc from the strokes (Fig. 7); and

laying out a graphical user interface, including controls, to conform to the arc (see col. 3, lines 16-24).

Therefore, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to allow the user to make the arc shaped graphic taught by the combination of Anderson et al. and Miettinen et al. be determined by an individual user as taught by Ono in order to allow for calibration of the system such that each user can have a more comfortable interface aligned to their own personal natural motion.

Regarding claim 27, Anderson et al., Miettinen et al. and Ono disclose a method as recited in claim 26.

Anderson et al. also disclose a method comprising:

determining a position of a cursor specified by the user (Figures 5a and 5b show that the position of the cursor 54 is determined on the screen.); and

positioning the interface responsive to the position (Figures 5a and 5b show that the position of the arc shaped menu interface 53 is responsive to the position of the cursor 54.); and

allowing the user to activate a function of the interface (Figures 3, 5aand 5b show that the user can use the cursor to activate one of the items 31 on the interface.).

9. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. (US 5,828360) in view of Miettinen et al. (US 2002/0054175) and further in view of Ono et al. (US 5,559,944).

Regarding claim 24, Anderson et al. and Miettinen et al. disclose a method as recited in claim 23.

Anderson et al. and Miettinen et al. fail to teach the method further comprising determining whether the user has specified a custom arc and positioning one of a custom and standard arc shaped interface responsive to the determination.

Ono et al. disclose a method further comprising determining whether the user has specified a custom arc (Column 3, lines 16-24) and positioning one of a custom and standard arc shaped interface responsive to the determination (Column 3, lines 16-24, where the custom arc shaped interface is positioned.).

Therefore, it would have been obvious to “one of ordinary skill” in the art at the time the invention was made to make the arc shaped interface taught by the combination of Anderson et al. and Miettinen et al. have a user customized arc shaped as taught by Ono et al. in order to allow for a user to use the interface without causing an unnatural force.

Allowable Subject Matter

10. Claim 28 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for indicating allowable subject mater is the inclusion of the limitation "wherein plural users are allowed to make strokes individually at different times and the arc is determined from the combination of strokes of the plural users", which is not found singularly or in combination within the prior art.

The closest prior art reference for this limitation is Ono (US 5,559,944), which discloses of allowing a single user determine an arc shape of a menu, however, fails to teach that the arc shape is determined by the combination of strokes made by different users at different times.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN G. SHERMAN whose telephone number is (571)272-2941. The examiner can normally be reached on M-F, 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stephen G Sherman/
Examiner, Art Unit 2629

/Amr Awad/
Supervisory Patent Examiner, Art Unit 2629

7 April 2009